

Child • Care • Information • Center
NEWSLETTER

(608) 224-5383 (Madison Area) (800)362-7353

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Editor: Connie Wilsnack

SCIENCE AND CHILDREN: ENCOURAGING A SENSE OF WONDER

This newsletter is full of science and nature resources to help you encourage young children to act, sense, think, and discover.

"With young children, science is continuous wondering, finding out, knowing. Science is thinking, doing, and making the two go together. The raw materials and events of science are all around, at home, in the yard, and in early childhood and primary centers and schools.



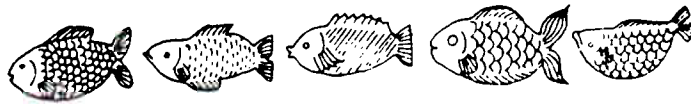
Science for young children is catching an insect in a jar, watching it, and feeling the importance of letting it go. It is playing in dishwater with a measuring cup. It is wearing a coat in winter and considering why it is warmer that way. It is seeing how crabs and spiders are alike. Most children discover the materials skillfully. Most are delighted participants in the events. Making a science experience out of a find or happening may require the sensitivity and hard work of an adult." (Science with young children, Bess-Gene Holt)

What are science experiences with young children? They include these suggestions from Science With Young Children.

Own Bodies	Clothing	Weather	Light
Food	Shelter	Wind	Plants
Water	Ecosystem	Sound	Animals

The books and tapes on science and nature in this newsletter are available for loan from the Child Care Information Center. To borrow an item call toll-free 1-800-362-7353

Indicate the issue number or title of the newsletter you are ordering from. Give us the number in front of the item in the newsletter. Book loans are for two weeks, tapes for one week. Articles you may keep or recycle by sharing with someone else.



BOOKS

GENERAL SCIENCE

1. **DISCOVERING THE WORLD: PHYSICAL SCIENCE.** Dianne Jurek, Sharon MacDonald. Forty learning center plans which cover the basic areas of physical science. Some of the activities include fruity claydough, snowball seriation, and heat absorption of various soils. The activities as outlined are highly structured. The ideas could be adapted so the emphasis was on children experiencing. Preschool to grade 3.
2. **HANDS-ON SCIENCE FAIR EXPERIMENTS.** Ingrid Sherwood. 45 experiments with materials needed, procedure, and questions to talk about outlined. Each includes a song about the experiment. Includes guide on conducting science fairs. Preschool-grade 1.
3. **HEART TO HEART CAREGIVING: A SOURCEBOOK OF FAMILY DAY CARE ACTIVITIES, PROJECTS, AND PRACTICAL PROVIDER SUPPORT.** E. Sandy Powell. Using the encouragement to "start where you are" the author shows you how to build a program that reflects your own strengths and unique interests. The stories shared in this book will motivate you. Lots of ideas you can easily use. Included are chapters on cooking, gardening, animal care, and experiments.
4. **I WONDER: CREATIVE THINKING AND PROBLEM SOLVING FOR YOUNG CHILDREN.** Alice Pearce. Children solve problems creatively long before they enter school. Use this resource book to extend children's natural creative thinking abilities. The six sections are: a question a day, science, math, solutions, art, and language. For preschool.
5. **I CAN DO IT! I CAN DO IT!** La Britta Gilbert. Included in this general activity book emphasizing independent learning are activities with magnets, magnification, flotation, and weight and balance. Age 2-5+.
6. **INVESTIGATING SCIENCE WITH YOUNG CHILDREN.** Rosemary Althouse. Begins with a discussion of ten processes children use as they act on objects: observing, classifying, comparing, communicating, inferring, concluding, predicting, using numbers, measuring, and using space/time relations. Activities for preschoolers are described which use these processes. Activity units include water, colors, pets, combining materials, balance, sand, food, motion, seeds, boxes, bubbles, space, wood, and making toys.

7. **MORE MUDPIES TO MAGNETS.** Elizabeth Sherwood, Robert Williams, & Robert Rockwell. Clearly outlined experiences on chemistry beginnings, physics, geology, weather, flight and space, plants, animals, and math. Age 2 and up.
8. **MUDPIES TO MAGNETS.** Robert A. Williams, Robert E. Rockwell, Elizabeth A. Sherwood. This book begins with an introduction to teaching science. It discusses various ways you may want to talk with children about science, science safety, resources for the program, teacher's role, integrating science into the curriculum, and making science kits. Activities are clearly outlined with a suggested age identified as 2+, 3+, 4+, or 5+.
9. **SCIENCE WITH YOUNG CHILDREN.** Bess-Gene Holt. What is science for children birth through age 8? How does the teacher guide science experiences? In the appendix there is a list of inservice ideas. A list of poisonous plants. This book was an NAEYC Comprehensive membership benefit. It is worthwhile reading.
10. **SPACE.** Gloria Harbin and Kenn Goin. Stories and 3-5 follow up activities to reinforce and extend the ideas presented in the story. Units on the earth, the sun and moon, the stars, the space shuttle, and astronauts. Units on setting up interest centers on space. For preschool-kindergarten.
11. **TEACHING CHILDREN ABOUT SCIENCE.** Elaine Levenson. A useful reference for teachers on the senses, magnetism, static electricity, sound, light, air, water, weather, rocks, animals, plants, and ecology. If you wanted a quick reference on the vein patterns in leaves or the beaks of birds and how they used them, this book has an illustrated section for you. Lists children's books and further resources on each topic. Ages 3-10.
12. **THE WONDER OF IT: EXPLORING HOW THE WORLD WORKS.** Bonnie Neugebauer. This book has 8 chapters to inspire you to teach science and 6 chapters of ideas. Books for children and references for further reading are listed. Short chapters, easy reading, for infant-toddler & preschool years.
13. **WHAT WILL HAPPEN IF...YOUNG CHILDREN AND THE SCIENTIFIC METHOD.** Barbara Sprung, Merle Froschl, and Patricia B. Campbell. This book emphasizes developing children's thinking skills as they experiment, the interrelatedness of math and science, and equal opportunities for boys and girls. Four areas are outlined for preschool-grade 1: water and sand, blocks, bottles and liquids, and machines and me.
14. **WONDERSCIENCE: A DEVELOPMENTALLY APPROPRIATE GUIDE TO HANDS -ON SCIENCE FOR YOUNG CHILDREN.** Wendy Nichols and Kim Nichols. The units are forces and movement, sound, air, water, and light. Each activity is outlined in terms of materials, presentation, open ended questions, and

variations. Photographs help to explain the projects. Affordable and unique experiments. Ages 2-10.

NURTURING NATURE LOVERS

15. **ALL SEASON FUN AND FROLIC.** Audrey Robertson. One chapter describes seven different nature walks you can enjoy with children. For toddler to school age.
16. **BUBBLES, RAINBOWS, AND WORMS: SCIENCE EXPERIMENTS FOR PRE-SCHOOL CHILDREN.** Sam Ed Brown. Begins with a discussion of fitting science into the preschool classroom, setting up a science center, and use of vocabulary in teaching science. Units include air, animals, environment, plants, senses, water, and miscellaneous.
17. **BUGS TO BUNNIES.** Kenn Goin, Eleanor Ripp, Kathleen Nastasi Solomon. The science of animals is covered through units about insects, spiders, amphibians, reptiles, fish, birds, and mammals. Each unit has stories, activity ideas, and reproducible sheets that address these questions: How do animals look? What do they eat? How do they protect themselves from enemies? Where do they live? How do they have babies? For preschool-grade 1.
18. **CLOSE ENCOUNTERS WITH INSECTS AND SPIDERS.** James B. Nardi. Organized into five sections: home, school and garden; ponds and streams; meadows and fields; trees and logs; and beneath our feet, this book illustrates the bugs, describes how they live and eat, and how to observe them. A terrific reference book.
19. **DISCOVERING THE WORLD: BIOLOGICAL SCIENCE.** Dianne Jurek, Sharon MacDonald. Forty learning center plans which cover the basic biological sciences. Some of the activities include ant farm, raisins in the sun, and peanut butter bird feeders. The activities as outlined are for structured, independent learning. Preschool.
20. **EXPLORE AND EXPERIMENT: ADVENTURES IN NATURE AND SCIENCE FOR YOUNG CHILDREN.** Jeannine Perez. The units are air, water, plants, animals, earth, and trash as treasures. Activities for preschoolers.
21. **HANDS-ON NATURE.** Jenepher Lingelbach, ed. A wonderful resource about the natural world. Activities to help you plan hands-on science units and learning centers. There are four sections. "Adaptations" includes insects, seeds, deer, hunter-hunted, tooth types, beaks, feet, and feathers, thorns and threats, and frogs. "Habitats" includes fields, forest, galls, animals in winter, snow, rotting logs, streams, and ponds. "Cycles" includes insects, trees, birds, weeds, twigs, bird songs, and wildflowers. "Designs of nature" includes spider webs, leaves, grasses, snowflakes, tracks, cones, camouflage, dandelions, and honeybees. For preschool and schoolage.

22. **HUG A TREE AND OTHER THINGS TO DO OUTDOORS WITH YOUNG CHILDREN.** Robert Rockwell, Elizabeth Sherwood, and Robert Williams. This book prepares you for outdoor education, not necessarily in the woods. It covers getting kids to talk, recording data, organizing an outdoor experience, and resources. Units include living your environment, turning on your senses, backyard data collecting, measurement experiences, and time and seasons. Included are directions for a variety of bird feeders. Age appropriateness is identified for each activity. For 3 and up.
23. **NATURE CRAFTS.** Imogene Forte. Things to make with nature's treasures.
24. **PEACEWORKS.** Kathleen Fry-Miller, Judith Myers-Walls, and Janet Domer-Shank. Positive and playful experiences must be a part of adults' efforts to teach peace to children. In this book there are experiences with solar power, wind power, water power, and seasonal fun: activities for spring, summer, fall, and winter. Activities give teachers and young people concrete ways to make a difference. For ages 3-10.
25. **REACHING FOR CONNECTIONS, Volume II.** David W. Stokes. Activities focus on sensory awareness, animals, plants; lists words for songs as well as sources for tapes, activities for each of the seasons, animals nobody loves, nature's music, and preparing the outdoor teaching bag.
26. **SCIENCE FUN.** Imogene Forte. Simple and fun. Investigating, exploring, and experimenting activities are described for preschoolers and younger schoolagers.
27. **SHARING THE JOY OF NATURE.** Joseph Cornell. Wonderfully creative and interactive nature activities for ages 5 and up. Some activities could be adapted for younger children. The concept of flow learning is described.
28. **SHARING NATURE WITH CHILDREN.** Joseph Bharat Cornell. How to be an effective nature guide and nature games for ages 3 and up.
29. **THE OUTSIDE PLAY AND LEARNING BOOK.** Karen Miller. A game approach to science, nature, and other activities. Ideas for infant to age 5+. Age appropriateness is identified for each activity. Included are experiences with texture, sand and mud, water, snow, shadows, temperature, and leaves.
30. **TOTALLY AUTUMN.** Sherrill B. Flora. Units on apples, autumn, and forest animals, among others. Stories, activities, games, and recipes. Preschool-grade 2.
31. **TOTALLY SPRING.** Sherrill B. Flora. Units on March winds and April showers; the farm and farm animals; springtime; bugs, frogs and turtles; and underwater animals. Songs, stories, and activities. For preschool-grade 2.

CONSERVING EARTH'S NATURAL RESOURCES

32. **HANDS-ON RECYCLING.** Toni Albert. Children learn about recycling through activities in art, music, drama, hands-on construction and discussion. Includes activities such as making a miniature landfill, composting, and making recycled paper. Preschool-age 5.
33. **OUR WORLD.** Gayle Bittinger. Over 120 experiments, art and language activities, learning games and songs about land, air, and water. Fun, practical environmental experiments and ideas. The activities are clearly outlined and use things you have around the house. Most are for the younger ages. Ages 3-8.
34. **SUPERART: RECYCLING SUPERMARKET THROWAWAYS.** Ellen Matlach Hassell. Each page features a project to create gifts and crafts by recycling supermarket throwaways. Clearly outlines materials needed and simple step-by-step directions. Includes puppet theaters, winter bird feeders, holiday picture frames, Mother's Day Beads, greeting cards, envelopes, gift wrap, and much more.
35. **YOUNG PEACEMAKERS PROJECT BOOK.** Kathleen Fry-Miller and Judith Myers-Walls. Peace educators must model the world they are seeking to create. This kind of modeling jumps out of the pages of this book, especially in the "Let's talk about it" and "Other things to do" sections of each activity. Nature, litterbug, and recycling activities to encourage preservation of the environment are included. For ages 3-10.



FOOD SCIENCE

36. **COOL COOKING FOR KIDS.** Pat McClenahan & Ida Jaqua. Easy to follow recipes include simple and no heat needed dishes. Complete instructions include teaching techniques, enrichment activities, equipment lists, and safety tips. Preschool-Kindergarten.
37. **CUP COOKING.** Barbara Johnson & Betty Plemons. Children learn to cook single portion recipes they can eat themselves. Ages 3-7.
38. **FOODWORKS.** Ontario Science Centre. Over 100 science activities that explore the magic of food while providing sound nutrition and health facts along the way. Examples are dirtless farming, space food, the inside story of a chocolate bar, and a section called whole hog that will help children see hogs in a new way. Preschool-schoolage.
39. **FUNTAISTIC RECIPES.** Linda Roberson. A pictorial cookbook for children. 84 simple nutritious recipes.

40. **HEALTHY SNACKS FOR KIDS.** Penny Warner. More than 200 snacks, meals, desserts, drinks, lunch box fillers and freezer treats.
41. **NUTRITION EDUCATION FOR YOUNG CHILDREN, STRATEGIES AND ACTIVITIES.** C. B. Whitener & M. H. Keeling. Planning and preparing meals for infants, toddlers and preschoolers, recipes for snacks, activities for children, and how to involve parents in nutritional responsibility.
42. **THE JOY OF SNACKS.** Nancy Cooper. Over 200 recipes. A special collection of recipes for children to prepare with adult help.
43. **THE TAMING OF THE C.A.N.D.Y. MONSTER.** Vicky Lansky. What is a C.A.N.D.Y. monster? It stands for Continuously Advertised Nutritionally Deficient Yummies. Snack and main dish recipes, most of which are low in fat, sugar, and salt. Prepare these with the children and discuss the changes that take place as their snacks freeze, gel, or bake.

WATERPLAY

44. **AN EARLY START TO SCIENCE.** Roy Richards, Margaret Collis, and Doug Kincaid. This encourages exploration, manipulation, observation, comparison, questioning, and testing on the part of children. Illustrated throughout, the themes presented include gardening; color; time; shadows; collections of shells, stones, seeds, etc; balancing, flying, electrical, transparent, and shiny things; and 20 pages on waterplay. It presents lots of ideas for you to work with. It does not outline lesson plans. Ages 2-5.
45. **RUB-A-DUB-DUB SCIENCE IN THE TUB.** James Lewis. Waterplay activities for toddlers and preschoolers.
46. **WATERWORKS.** Jeanne C. James & Randy F. Granovetter. Waterplay activities organized into 3 age groups, 1-2 year olds, 3-4 year olds, and 5-6 year olds.

INTEGRATING SCIENCE WITH OTHER AREAS OF THE CURRICULUM

47. **ANIMAL PIGGYBACK SONGS.** Jean Warren. Over 200 songs about animals, from ants to horses to whales, sung to tunes your children already know.
48. **EARLY CHILDHOOD AND SCIENCE.** Margaret McIntyre. Describes how you can open the door to science through art, color, music, sound, spatial, and poetry activities. Describes various approaches to teaching science and seasonal science activities.



49. **HIGGLETY, PIGGLETY, POP! 233 PLAYFUL RHYMES AND CHANTS FOR YOUR BABY.** Jackie Weissman. Traditional and original rhymes including: animals, outdoor play, laughing and having fun, mealtime, bath and dressing, cuddling, rocking and going to sleep, and waking up and singing.
50. **SCIENCE EXPERIENCES FOR THE EARLY CHILDHOOD YEARS.** Joan Harlan. The units in this book include plants, animals, the human body, air, water, weather, seasons, rocks, magnetism, gravity, simple machines, sound, light, and electricity. Each section lists suggestions for integrating with music, creative movement, art, dramatic play, and children's stories. Age 3 and up.

INVOLVING PARENTS IN SCIENCE DISCOVERY

51. **PLAYTIME IS SCIENCE: IMPLEMENTING A PARENT/CHILD ACTIVITY PROGRAM.** Barbara Sprung, Linda Colon, Merle Froschl, and Sandra Jenoure. This program is about a process-one of learning to wonder, learning to question, and learning to think like a scientist in everyday life. The goals are to help parents understand the connection between early science learning and later choices in education and careers, to empower parents in their role as children's most important teachers, show parents they know a lot more about science than they realize, and give parents the background and techniques to facilitate independent learning in their children. Implement as a Super Saturday, or as a parental involvement program with parents working with their own children or groups of children during the day. Parent handouts are in English and Spanish. For ages 3-7.
52. **WALK WHEN THE MOON IS FULL.** Frances Hamerstrom. This book has a story for each month of the year, of walking when the moon is full. Read one story each month and talk about the seasonal changes. Encourage a year long parent-child interaction project where you read the story, children walk with their parents in the evening, and share the next day. You could develop a chart for recording discoveries.

ESPECIALLY FOR SCHOOLAGE

53. **EARTH, WATER, FIRE AND AIR.** Walter Kraul. Simple and more complicated models made out of paper, wood, and metal. Examples are a sailing boat made with a walnut shell, a twig waterwheel, simple helicopters, and a shadow game. Some could be toys for a three year old, others a several week project for a schoolager to make and play with.
54. **GEE, WIZ!** Linda Allison & David Katz. Fun projects for schoolagers.
55. **LIVING IN SPACE.** NASA, 1987. If you wanted to plan a unit on living in space, this would be a great guide. Lots of activities for schoolagers.

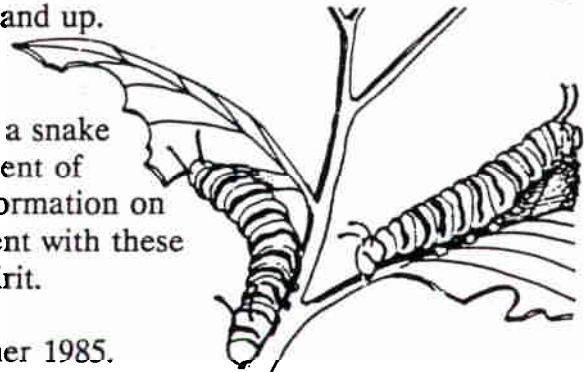
56. **SCHOOL-AGE IDEAS AND ACTIVITIES FOR AFTER SCHOOL PROGRAMS.** Karen Haas-Foletta & Michele Cogley. Suggestions for organizing a program, problem solving, and activities. Units related to science include nature crafts, planting, and science.
57. **SCIENCEWORKS.** Ontario Science Center. 65 experiments that introduce the fun and wonder of science. Includes sections on science magic, the outdoors, how and why things happen, energy savers, body tricks, and things to make. Many of these experiments are presented as puzzles or tricks, each representing one of the fundamental principles of science. Others present complex phenomena on a small, observable scale. Useful for a science museum, science fair, or anytime you wanted fun and science. Mostly for schoolage, some experiments for younger children. Age 4-12.
58. **WHERE ARE THE DINOSAURS? PALEONTOLOGY FOR KIDS.** Barbara S. Roundtree, Nancy Y. Taylor, and Melissa B. Shuptrine. This is a comprehensive guide to the study of dinosaurs. Chapters follow the geologic time periods, preceded by a chapter on fossils. Includes activities, songs about dinosaurs, and costumes. Lists over 24 theories on extinction. Lists children's books on dinosaurs.

ARTICLES

EXPLORING NATURE'S WONDERS WITH CHILDREN

59. **A GARDEN OF BUTTERFLY DELIGHTS.** Science and Children, March 1991. Describes how to build a garden that attracts butterflies and a unit built around butterflies.
60. **AN EXPERIENCE IN FROEBEL'S GARDEN.** Childhood Education, Fall 1990. A discussion of Froebel's (founder of Kindergarten) influence on the beginning of nursery schools woven with a story of how a sunflower garden and connected art experiences reflect his philosophy.
61. **BABIES GET OUT: OUTDOOR SETTINGS FOR INFANT TODDLER PLAY.** Beginning, Summer 1985. Create an outdoor setting to encourage the explorer and scientist in each baby.
62. **BE A SEED.** First Teacher, June 1990. Creative movement experiences help children understand the growth cycles of plants.
63. **CAMERA.** Joseph Cornell. A reprint from the book Sharing the Joy of Nature describing a camera game where children play photographer. Encourages aesthetic appreciation, trust, and seeing clearly with the camera game. Ages 3 and up.

64. **CLOSE ENCOUNTERS WITH INSECTS AND SPIDERS.** Young Children, September 1988. A review of the reference book by this title.
65. **FINGERPLAYS AND ACTION POEMS.** Texas Child Care Quarterly, Spring 1989. Fingerplays and action poems about seeds and flowers for age 2-5.
66. **FLOW LEARNING.** Joseph Cornell. A reprint from his book describing how to engage children in nature. The system is called flow learning because it has four stages that flow one into another in a smooth, natural way.
67. **GREEN BEANS: GARDENING WITH TWO'S.** Day Care and Early Education, Fall 1985. Delightful diary of a year round gardening project in the city. It incorporates suggestions for organization.
68. **GROWING GREEN THUMBS.** Beginnings, Summer 1985. Plant for the eyes, the nose, the fingertips, and the mouth. Suggestions are given.
69. **HEADED FOR THE WOODS.** School-Age NOTES, Nov/Dec 1990. Guidelines for blending with the environment when in the woods. Describes the "Feel It, See It" game.
70. **INCH BY INCH, HELPING KIDS GROW.** School-Age NOTES, Jan/Feb 1991. Words and notes for a song and description of how the seeds of music can reap rewards for school age child care. Age 5 and up.
71. **MOVING CREATURES.** Day Care and Early Education, Winter 1984. Describes a snake and caterpillar game to dramatize movement of these creatures. Observe and look up information on these creatures, then add further excitement with these games that require a cooperative team spirit.
72. **NATURE'S COLORS.** Beginnings, Summer 1985. Explore natural colors' variation in shade and hue with this hands on activity.
73. **OPEN THE DOOR, LET'S EXPLORE: NEIGHBORHOOD FIELD TRIPS.** Day Care and Early Education, Fall 1984. Ideas for nature field trips, integrating them into what the child already knows. A field trip is more a frame of mind, not just a trip to the zoo. Hints for happier trips. Describes shadow walk activities.
74. **PLANT A POTATO-LEARN ABOUT LIFE AND DEATH.** Young Children, November 1990. Describes a program for toddlers and preschoolers where the purpose of planting seeds is to help children understand life, growth, death, and life



cycles. Where parents are unfamiliar with the growth of their daily food, a parental involvement component is suggested.

75. **PLANTS AND CHILDREN: GROWING UP SAFE TOGETHER.** Texas Child Care Quarterly, Winter 1989. Lists 10 plants recommended as safe for children, suggests things children can do to care for the plants, and ways they can be used for children's activities.
76. **SCIENCE AND NATURE PROJECTS.** Day Care and Early Education, Summer 1986. Activities to introduce basic science and nature concepts to toddlers and preschoolers.
77. **THE OUTDOORS AS A LEARNING AREA: EXPERIENCES OF AUSTRALIAN TEACHERS.** Beginnings, Summer 1985. These teachers' playscape plans include both a stable and changing environment, quiet and active areas, and variety in textures and surfaces. If you are considering designing or redesigning outdoor space, here are some things to consider.
78. **WATCHING ANTS.** A reprint from the book Bubbles, Rainbows and Worms. How to build an ant farm in a gallon jar.
79. **WHY TEACH IT OUTDOORS?** Beginnings, Summer 1985. Describes how the outdoors is full of opportunities for analyzing and observing.
80. **WINTER FUN.** Day Care and Early Education, Winter 1984. Illustrates and gives instructions for eight bird feeders made with scrap materials from around the house and yard.

CONSERVATION

81. **COLLECTING THROWAWAYS.** Texas Child Care Quarterly, Summer 1987. Ways to involve children in collecting recyclable materials and ideas for their use.
82. **CONSERVATION ACTIVITIES FOR SCHOOLAGERS.** Excerpts from Texas Child Care Quarterly, Winter/Spring 1983. Fun hands-on activities.
83. **CONSERVATION SEEDS: POLLUTION AWARENESS.** Day Care and Early Education, Fall 1988. Litter, recycled paper, and fishing activities for preschoolers or young schoolagers.
84. **KITES USE WIND ENERGY.** Excerpt from Texas Child Care Quarterly, Spring 1983. The history of kites and clearly illustrated instructions for making a kite. For schoolagers as an individual project or a group project for preschoolers.

85. **THIS IS OUR LAND: PROMOTING ECOLOGICAL AWARENESS IN YOUNG CHILDREN.** Childhood Education, Annual Theme 1990. Air, land, and noise pollution; overpopulation; and conservation activities for grades 3-6.

INVOLVING PARENTS IN SCIENCE

86. **INVOLVING PARENTS IN SCIENCE.** Margaret McIntyre. A reprint from Early Childhood and Science. Describes various ways to involve parents in maximizing science potential in their children.

EXPLORING SPACE

87. **A RESOURCE UNIT FOR THE MOON.** Texas Child Care Quarterly, Fall 1988. Concepts and activities for 2, 3, 4, 5 year olds and schoolagers. Dramatic play, shapes, hands-on activities, experiments, and a pretend moon trip.
88. **ASTRONOMY FOR PRESCHOOL AND KINDERGARTEN.** NASA. Lessons on the moon, stars, and Big and Little Dipper. Legends and "dittos" for countdowns, etc. We don't generally encourage use of dittos, but these do augment the activities.
89. **LIVING IN SPACE: A PRESCHOOL AEROSPACE CURRICULUM.** Day Care and Early Education, Spring 1990. Units full of activities for preschoolers on wondering, the moon, and the stars.
90. **SPACE: A LEARNING CENTER.** Day Care and Early Education, Summer 1985. Activities on space for every interest center. Art, science, games, blocks, dramatic play, math, cooking, and music.

TEACHERS GUIDE SCIENCE EXPERIENCES

91. **CHARTING SCIENCE ACTIVITIES.** Texas Child Care Quarterly, Winter 1985. Clearly outlined examples of charting seven science activities in words, pictures, and charts.
92. **CHILD-INITIATED ACTIVITY: ITS IMPORTANCE IN EARLY CHILDHOOD EDUCATION.** Day Care and Early Education, Winter 1990. The teacher's role, suggestions, and consequences of the predominantly academic, structured, teacher directed approaches are discussed.
93. **DOES SCIENTIFIC ILLITERACY BEGIN IN THE DOLL CORNER?** Instructor, Nov/Dec 1986. An interesting article on how sex differences in play of preschoolers can limit or enhance readiness for science learning in elementary school.

94. **ENCOURAGING PROBLEM SOLVING.** Day Care and Early Education, Fall 1988. A problem should be challenging, but not too challenging. Discusses how to identify if a problem is developmentally too difficult or too routine for the children you are working with. This article also discusses the kinds of questions we should ask.
95. **IN THE AGE OF QUESTIONS.** Beginnings, Winter 1984. A discussion of the questions children ask and helpful answers.
96. **KIDS AND SCIENCE-MAGIC IN THE MIX.** Exchange, June 1989. This article explains how the setting and spirit of the entire curriculum influences science learning.
97. **LIVING IN THE REAL WORLD.** Exchange, December 1989. "Critics call *mall life*. Can we afford to have canned childhoods?"
98. **SCIENCE: THE WONDER OF IT ALL.** Family Day Caring, Nov/Dec 1989. Science learning can begin with things you have around the house. This article will help you discover science opportunities.
99. **TEACHING SCIENCE TO PRESCHOOLERS.** Science and Children, October 1981. In a study of two groups of 4-5 year old children, those exposed to a science curriculum increased their self-directed discovery and verbalized curiosity more often than the other children. You will be motivated by the descriptions of the science activities used: water play, small creatures, garden, pond, and gadgetry.

WATERPLAY

100. **ENCOURAGING SCIENCE THROUGH PLAYFUL DISCOVERY.** Day Care and Early Education, Fall 1988. Describes a series of teacher facilitated science experiments with ice cubes.
101. **LET'S EXPERIMENT WITH BUBBLE BLOWERS!** Pre-K Today.
102. **SPRING WEATHER.** Day Care and Early Education, Spring 1985. Spring and summer activities for toddlers and preschoolers.
103. **WATERWORKS.** Day Care and Early Education, Fall 1990. Activities excerpted from the book Waterworks for 1-2 year olds.

FOOD

104. **ACTIVITIES TO ENHANCE THINKING SKILLS: FRUITS AND VEGETABLES.** Day Care and Early Education, Describes activities to help children learn more about the fruits and vegetables they eat. Preschoolers to young school-age children.

105. **EXPLORE A PUMPKIN AND PUMKIN BALANCE.** Building Blocks, October 1990. Encourage children to use their five senses while exploring the outside and inside of pumpkins. Weigh pumpkins with a simple balance scale.
106. **TRY APPLES NOT PUMPKINS FOR HALLOWEEN.** Texas Child Care Quarterly, Fall 1987. Apple fingerplays, tasting and cooking activities, and games for any fall day. Ages 2-4.

ANIMALS

107. **EGGS AND CHICKS: AN INTEGRATED CURRICULUM FOR CHILDREN WITH DISABILITIES.** Teaching Exceptional Children, Spring 1991. Describes how staff led blind students in carefully developed multisensory activities. The activities could be used with children who have other types of sensory or motor dysfunction. Or, with any children where you wanted to emphasize the sensory aspects of chicks hatching. If you plan this activity, you'll want to read this article.
108. **MOVE OVER, MOTHER GOOSE: ACTION VERSES WITH ANIMALS.** Day Care and Early Education, Summer 1990. Verses and actions about bunnies, frogs, ponies, bumble bees, and fish from the book by this title.
109. **ROUNDWORMS.** Pediatrics for parents, April 1990. Describes prevention and treatment of roundworm infection.
110. **THE VALUE OF PETS IN CHILDREN'S LIVES.** Childhood Education, December 1986.


PHYSICS

111. **THE DISCOVERY OF GRAVITY.** Day Care and Early Education, Summer 1989. Describes a delightful learning experience as two year olds take a field trip with their medium sized balls to the top of a large sand dune.

SCHOOLAGE CHILD CARE

112. **HELP CHILDREN WITH SCIENCE.** Wisconsin Department of Public Instruction, 1991. Lists ways parents and school age child care providers can enhance interest in science. Outlines the basic skills used in elementary science programs. The single page can be copied for parents.

CHILDREN'S BOOKS

113. **A TREE IS NICE.** Janice May Udry. A book about the many ways a tree is nice that children will be able to relate to.
114. **ANIMALS.** Valerie Greeley. A board book with illustrations of great detail and only the name of the animal under the picture. 6-18 months.
115. **BUTTERFLY AND CATERPILLAR.** Barrie Watts. Photographs and text illustrate the life cycle of a butterfly and show how it gets its food.
116. **CHICKEN AND EGG.** Christine Back and Jens Olesen. Photographs and text show how a chick develops inside an egg. Complements a chick hatching project.
117. **CHILDREN OF THE FOREST.** Elsa Beskow. Deep in the roots of an old pine tree live the children of the forest. Playing hide-and-seek with the squirrels, who live upstairs in the tree. It is a story of the adventures of each season.
118. **HONEYBEE.** Barrie Watts. Beautiful photographs and text on how bees make honey and their life cycle. 
119. **HOW BABIES ARE MADE.** Andrew C. Andry and Steven Schepp. This book begins talking about flower and animal reproduction, and then goes on to tell how human babies are made. The book flows nicely, has full page illustrations, and becomes quite explicit on this topic. Ages 3-10.
120. **MORE THAN JUST A VEGETABLE GARDEN.** Dwight Kuhn. Beautiful photographs and text illustrate the ever changing vegetable garden. Use to augment your gardening project and to anticipate discoveries.
121. **TADPOLE AND FROG.** Christine Back and Barrie Watts. Photographs and text illustrate how a tadpole develops into a frog. Maybe you can visit a pond and observe some live tadpoles.
122. **THE STORY OF THE ROOT CHILDREN.** Sibylle von Olfers. The root children spend the winter asleep deep underground under the care of their wise Mother Earth. When spring comes they wake up, sew new gowns and capes, clean and paint the beetles and bugs, and go forth into the world.

These books are illustrated. Text is for schoolage, pictures and questions posed could be used with preschoolers.

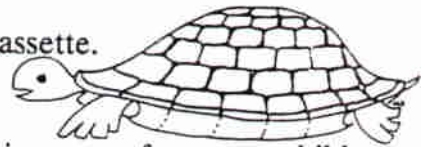
123. **DISCOVERING THE STARS.** Laurence Santrey.

124. **DISCOVERING ELECTRICITY.** Rae Bains.
125. **WHAT MAKES THE WIND?** Laurence Santrey.
126. **WHAT MAKES IT RAIN?** Keith Brandt.
127. **WONDERS OF PLANTS AND FLOWERS.** Laura Damon.
128. **WONDERS OF THE RIVERS.** Rae Bains.
129. **WONDERS OF THE FOREST.** Francene Sabin.
130. **WONDERS OF THE SEASONS.** Keith Brandt.
131. **WONDERS OF THE SEA.** Louis Sabin.
132. **WONDERS OF THE POND.** Francene Sabin.

VIDEOTAPES AND AUDIOCASSETTES

133. **ASTRONAUTS' ADVENTURE.** Hawthorne Publishers. Audiocassette and large size book. Children take an imaginary trip to outer space as they enact this adventure set to music. Ages 3-5.
134. **FLYING WITH THE SWANS.** Rainbow Records. Audiocassette. Through the power of their imaginations, children become migrating swans, whales, and butterflies, and as hawks hunt for the family's dinner. Ages 7-10.
135. **FOUNDATIONS OF SCIENCE.** VHS, 17 minutes. An overview of children gaining an understanding of the physical and natural world. If you are looking for encouragement to add some science to your program, this would help you begin to think about the possibilities. Beginning preschool staff would find it useful in creating awareness of the science potential in many activities.
136. **GLAD THAT YOU ASKED.** Gentle Wind. Audiocassette. Habitat, Vegetarian Farmer, Watermelon, and more.
137. **GOOD MORNING, GOOD NIGHT: A DAY ON THE FARM.** VHS, 17 minutes. Enjoy a day on the farm with the children and the animals that live there. Use before a field trip to a farm. Accompanied by simple folk songs, lyrics included.
138. **HELLO EVERYBODY!** Gentle Wind. Audiocassette. Playsongs, rhymes and lullabies. Pussy Willow Riddle, What Do I Smell? Five Little Ducks, This Is What I See and more. Ages 1-4.
139. **OVER IN THE MEADOW.** Rainbow Records. Audiocassette. 14 nature songs for children including some classics and four original songs, such as Over In The Meadow, The Way Of The Bees, Lots Of Worms, and Five Green and Freckled Frogs. Ages 2-8.
140. **RAINBOWS, STONES AND DINOSAUR BONES.** Gentle Wind. Audiocassette. Rainbows All Over My Room, The Dinosaur Song and more. Ages 3-9.

141. **THE WORLD'S BIG FAMILY.** Gentle Wind. Audiocassette. Songs about animals and the wonder of growing.
142. **THE WIND IS TELLING SECRETS.** Gentle Wind. Audiocassette. Songs to celebrate our harmony with nature and a child's sense of wonder. Mama Crow, I Can't Wait for Spring, The Terrible Bug, Touch the Sky and more. Ages 4 and up.
143. **THE FROG'S PARTY.** Gentle Wind. Audiocassette. These cute songs about animals, birthdays and mittens are also about self-esteem, peace and appreciating our wonderful earth. Ages 2-8.
144. **THE LIVING FOREST.** Garth Gilchrist. Audiocassette. Children experience the wonder of nature and the magic of their own imaginations. They fly through the snowy night as a beautiful owl and become a river, dancing down the mountainside on a journey to the sea. Ages 5-9.
145. **TREES, TREES, TREES.** Rainbow Records. Audiocassette. 7 nature and 7 environmental songs, including Mister Turtle Man, Rainbow In My Heart, Little Drops Of Water, and Raccoon's Got A Bushy Tail. Some are action songs for young children, others relaxation songs for schoolage or adults. Ages 4+.
146. **TWO HANDS HOLD THE EARTH.** Gentle Wind. Audiocassette. Fox's Dance, Jump Salmon Jump, Wish I Were A Whale, Two Hands Hold the Earth, Moon's Lullaby, and more. Ages 4 and up.



RESOURCES AVAILABLE FROM OTHER SOURCES

Cooperative Extension Service publication NCR 123 **Books for Young Children: The natural environment.** Available from your county UWEX Office or Agricultural Bulletin, Room 245, 30 North Murray St., Madison, WI 53715 \$.70 plus \$1.50 shipping.

4-H projects and clubs can be integrated into School Age Child Care programs. Projects related to science are exploring, foods & nutrition, food preservation, aerospace, environmental education, and plant & soil science. Contact your county 4-H & Youth Agent for more information.

Department of Natural Resources
Box 7921

Madison, WI 53707

Project WILD and Project Learning Tree. Resources are available to those who attend the training for these programs. Designed for K-12, adaptable for preschool.

Contact Dennis Yockers at the above address or phone 608-266-0870.

Educational Communication
General Electric Company
Fairfield, CT 06431

Take It From Us You Can Be An Engineer shows women and men of diverse racial and ethnic backgrounds engaged in science related work. Pictures for schoolage and up. Available in single sets or quantities of 25. Free. Phone 203-373-2843.

First Teacher Inc.

P.O. Box 180

Wilmington, NC 28402

Back Issues of the newsletter available for \$2.50. Each is full of activities on a theme.

Volume 11 No. 2 February 1990 Dinosaur Days

Volume 11 No. 4 April 1990 Exploring the Seasons

Volume 11 No.7/8 July/August 1990 Look Up in the Sky

Kids for Healthy Hearts News

P.O. Box 3449

Battle Creek, MI 49016

A newsletter written by children, for children. It is filled with tips, facts, recipes, and puzzles about the importance of eating right, exercising, and lowering cholesterol for a healthier heart. Sponsored by the Kellogg Company and under direction of the American Health Foundation. Write for a free subscription. For schoolage.

Lakeshore Learning Materials

2695 E. Dominguez St.

P.O. Box 6261

Carson, CA 90749

Ant farm, big view and giant magnifiers, and other supplies for science.

National Science Teacher Association

1742 Connecticut Avenue N.W.

Washington, D.C. 20009

Science and Children Journal, primarily for elementary grades, but always has one article on preschool science.

National Geographic Society

17th and M Streets NW

Washington, D.C. 20036

National Geographic World magazine-elementary children

National Audubon Society

950 Third Avenue

New York, NY 10022

National Wildlife Federation

8925 Leesburg Pike

Vienna, VA 22184 Phone 800-432-6564

Your Big Back Yard, age 3-5, \$12/12 issues, **Ranger Rick**, age 6-12, \$15/12 issues. Help children learn more about the world of nature and conserving resources.

Natural Resources Defense Council

40 W. 20th St.

New York, NY 10011

Forming a kids' environmental organization nationwide. Phone 212-727-2700

Playfair Toys

1690 28th St.

Boulder, CO 80301

Games and books on science and nature.

Schlitz Audubon Center

1111 E. Brown Deer Road

Milwaukee, WI 53217-1999

Reaching for Connections Vol I, Ages Pre-K through adult, \$6.98

Reaching for Connections Vol II, Ages 2-10, \$6.98

Scienceland, Inc.

501 Fifth Ave.

New York, NY 10017-6102 Phone 212-490-2180

Scienceland children's magazine, preschool-grade 3, \$15.95 student edition, \$36.00 deluxe edition, \$12.00 teacher's manual. 8 issues. Prices go up after 6/30/91.

Teachers' Laboratory, Inc.

104 Canal St., P.O. Box 6480

Brattleboro, VT 05302-6480

Connect, a monthly newsletter focusing on a science theme. Catalog of hands-on science activity books. Think and do science activity cards for young children. K-grade 8, \$24.50/8 issues. Phone 802-254-3457

The Young Naturalist Foundation

Owl Chickadee Magazines

255 Great Arrow Avenue

Buffalo, NY 14207-3082

Chickadee magazine-preschool children-age 9, **Owl magazine** ages 8-12. A nature magazine with beautiful illustrations and colorful photographs. Views of animals in their natural habitat. Each issue is devoted to one animal or subject. \$14.95 for 10 issues

The Rainbow Collection
83 Rolling Hill Lane
Southington, Conn. 06489

Books, puppets, games, flannel felt sets, thematic packages and more. All are nature oriented materials for teaching children.

William Gladden Foundation
79 Carley Avenue
Huntington, NY 11743

Coloring/Activity/Story Books on these and other topics. Schoolage.

The Gladimals Help Save The Earth \$.75 each

Eat the Healthy Way with the Gladimals \$.75 each

No endorsement of products mentioned is intended. They are listed for your convenience.

NEW VIDEOS

To borrow a new video, call CCIC and request by number. Waiting lists may be long, so let us know if you want to schedule a tape for a specific date or if you need it within a certain time period. **IT IS ESSENTIAL THAT YOU RETURN TAPES PROMPTLY AFTER ONE WEEK OF USE!**

147. **DEATH OF A GOLDFISH.** By Fred Rogers. Pittsburgh, PA: Family Communications, Inc., 1970, color, 30 min. Fred Rogers designed this episode of his children's TV show, Mister Rogers Neighborhood, as an introduction for children to the subject of losing a loved one. He talks with children in a very sensitive way about the death of one of the fish in his aquarium and a dog he had when he was a boy. An adult should be present to guide the feelings that his program will evoke in young children.
148. **FLOOR TIME: TUNING IN TO EACH CHILD.** Based on the work of Stanley Greenspan, MD. New York: Scholastic Inc., Early Childhood Division, 1990. VHS, color, 35 min. + professional guide. Shows how children grow emotionally in different ways and at different rates, and how the quality of your interactions with them at each stage of development is vital for their emotional, social, and intellectual growth. Gives five steps to help you physically and emotionally tune in to each child and make special time with young children really work.
149. **PARENTS AND CHILDREN: MYTHS AND REALITIES.** By Alice Honig. Madison, WI: Child Care Information Center, 1991. VHS, color, 57 min. In her speech at the 1990 Wisconsin Early Childhood Association's Annual State Conference, Alice Honig, Professor of Child and Family Development at Syracuse University, describes 14 common myths about parents, children, and day care, and shares her deeply felt and inspiring beliefs about caring for and nurturing infants.

SMALL GROUP TIME SERIES. Ypsilanti, MI: High/Scope, 1988. A series of five tapes showing small-group time in action at High/Scope's demonstration preschool.

150. **COUNTING WITH BEARS.** VHS, color, 17 min. Outlines strategies for planning the beginning, middle and end of small-group time. Gives suggestions for the teacher's role in promoting and extending children's interests and abilities.
151. **EXPLORING WITH PAINT AND CORKS.** VHS, color, 12 min. Explains the dynamics of small-group time by showing important sequences of teacher-child interaction. Shows how the teacher involves children in planning and decision making.
152. **PLAN-DO-REVIEW WITH FOUND MATERIALS.** VHS, color, 25 min. An experienced High/Scope teacher plans for a small-group time, carries out her plan and then evaluates the outcome with another teacher. Also shows what to do when things don't go as planned.
153. **REPRESENTING WITH STICKS AND BALLS.** VHS, color, 14 min. An experienced High/Scope teacher/trainer shows how to listen to children and elaborate on their ideas at small-group time. Shows how to work effectively with each child in the group.
154. **WORKING WITH STAPLERS.** VHS, color, 12 min. Child management issues are the primary focus of this tape. Answers three key questions about small-group time: How do I keep children at the table? How do I set limits without changing children's ideas? How do I recognize differences in children's developmental levels?
155. **TRAITS OF A HEALTHY FAMILY.** By Dolores Curran. New York: Harper & Row, 1987. VHS, color, 55 min. Dolores Curran tells an audience of parents and young adults that the healthy family communicates and listens, affirms and supports, teaches respect, develops trust, plays and laughs, shares responsibility, teaches right from wrong, values kinship, interacts in balance, shares a religious core, respects privacy, values service to others, values family mealtimes, shares leisure time, and admits to problems and seeks help. She challenges families to learn what their strengths are and build on them.